

SUPPORT FOR THE AMENDMENTS

Claims 1, 2, 5-24, and 39-41 were previously canceled.

Claim 4 is canceled herein.

Claim 3 has been amended.

The amendment of Claims 3 is supported by Claims 3 and 4 as originally and previously pending. Additional support for the amendment to Claim 3 can be found in the specification as filed, at least, on pages 8-12 (for example, page 8, second paragraph, page 9, last paragraph, and page 12, second paragraph).

No new matter has been added by the present amendment.

REMARKS

Claims 3, 25-38, and 42-48 are pending in the present application.

The rejection of Claims 3, 29, 33, and 34 under 35 U.S.C. §102(b) over Goossens et al. (1998), is obviated by amendment.

Applicants make no statement with respect to the propriety of this ground of rejection and in no way acquiesce to the same. Nonetheless, solely to expedite examination of this application, Applicants have amended Claim 3 to include the limitations of Claim 4 which the Examiner recognizes as not being anticipated by Goossens et al. Specifically, Goossens et al do not disclose or suggest a HTM or vapor deposition of a HTM or dye layer.

Applicants request withdrawal of this ground of rejection.

The rejections of: (a) Claims 4, 26, 27, and 30 under 35 U.S.C. §103(a) over Goossens et al in view of Yamamoto et al; (b) Claims 27, 28, 30, 31, 37, and 38 under 35 U.S.C. §103(a) over Goossens et al in view of Nakamura; (c) Claims 30-32, 36, and 38 under 35 U.S.C. §103(a) over Goossens et al in view of Saurer et al; (d) Claim 25 under 35 U.S.C. §103(a) over Goossens et al in view of Yu et al and either Saurer et al or Nakamura; and (e) Claims 35 and 48 under 35 U.S.C. §103(a) over Goossens et al in view of Sakurai et al, is obviated in part by amendment and traversed in part.

Goossens et al disclose photovoltaic solar cells based on dye-sensitization of TiO₂ (i.e. semiconducting oxide) layers and a method for producing the same by vapor deposition of TiO₂ on fluorine-doped tin oxide substrate (i.e. an electrode material) (see the "Experimental" section on page 114).

The Examiner alleges at page 3, item 4, of the Office Action that Goossens et al disclose a method for producing a hybrid organic solar cell having the general structure “substrate+EM/SOL/dye/HTM/EM.” However, the so-called “Gratzel” type solar cell as disclosed in Goossens et al does not have the active layer structure “SOL/dye/HTM”. Instead, the solar cell disclosed by Goossens et al has the structure “SOL/dye/liquid electrolyte”.

At page 3, last sentence of item 4, in the Office Action, the Examiner alleges “the electrolyte solution is a hole transport material”. Applicants respectfully disagree and submit that a hole conductor is not identical to an ionic conductor. The electron transport mechanism in a hole conductor (electron hopping) differs fundamentally from that of a liquid electrolyte (diffusion of ions, here triiodide made of iodide and iodine). Therefore, the liquid electrolyte as disclosed in Goossens et al can not be regarded as a hole transport material in terms of the present invention.

In addition, Goossens et al does not disclose vapor deposition of a layer other than the SOL, as already acknowledged by the Examiner in connection with previous Claim 4 (see page 4, last paragraph of the Office Action). Applicants have amended Claim 3 to include the limitations of Claim 4 which the Examiner recognizes as not being anticipated by Goossens et al. More specifically, Goossens et al do not disclose or suggest a HTM or vapor deposition of a HTM or dye layer.

In the Office Action, the Examiner cites Yamamoto et al, Nakamura, Saurer et al, Yu et al, and Sakurai et al; however, none of these references compensate for the aforementioned deficiency in the disclosure of Goossens et al. Yamamoto et al is the only reference cited as disclosing the limitations of previous Claim 4, which is now a part of Claim 3. Yamamoto et al disclose a transparent conductive oxide film prepared from tin oxide which is formed by

CVD (see column 4, lines 61-67). However, this document does not disclose vapor-deposition of a HTM or dye layer. Thus, the combination of Goossens et al and Yamamoto et al would fail to place the artisan in possession of the presently claimed invention, much less provide any expectation of success. It should be noted that the claimed invention is advantageous in that a hybrid organic solar cell having a fully evaporated active layer structure is easier and thus cheaper to produce than solar cells in which the layers are deposited with different techniques. Clearly this would not be apparent from the combined disclosures of Goossens et al and Yamamoto et al, even if these references were further combined with Nakamura, Saurer et al, Yu et al, and Sakurai et al.

Thus, the subject-matter of the claimed invention is not obvious in view of Goossens et al in combination with any other of the cited secondary references. Withdrawal of these grounds of rejection is requested.

Finally, Applicants remind the Examiner that, should the elected species be found allowable, the Office should expand its search to the non-elected species.

Application Serial No. 10/799,257
Reply to Office Action of January 25, 2008.

Applicants submit that the present application is now in condition for allowance.

Early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Vincent K. Shier, Ph.D.
Registration No. 50,552

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)